



25 October 2023  
Otago Regional Council  
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### Submission on Application by Cold Gold Clutha, RM22.434

This feedback is provided on behalf of the Otago Fish and Game Council (**Fish and Game**). For additional information please contact Caelan Church using the details below.

#### Submitter Details

Submitter: The Otago Fish and Game Council  
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A handwritten signature in black ink, appearing to read 'Caelan Church', is positioned above a horizontal line.

25 October 2023

#### Executive Summary.

**[1]** Fish and Game is the statutory manager of sports fish and game bird resources within Otago. It holds this authority under the Conservation Act 1987, with its functions include managing, maintaining, and enhancing the sports fish and game resources of Otago. Cold Gold Clutha's proposed suction dredge will operate over a large stretch of the Upper Clutha River / Mata-au. The Upper Clutha River / Mata-au and the specific stretch where the activity will occur contains areas of significant habitat and spawning areas for sports fish. Fish and Game argue that more can be done to mitigate its impacts on the environment, particularly regarding its impact on trout spawning and habitat.

~~**[2]** Fish and Game opposes this application, and recommends the following relief surrounding the mitigation of adverse effects on spawning. It is not appropriate for Fish and game to provide information such as spawning and redd locations for this commercial operation, as the resource burden would be too great.~~

~~**[3]** Fish and Games preferred outcomes would be conditions that avoid the adverse effects on spawning and avoid redds. Therefore, Fish and Game seeks relief that would better mitigate the adverse effects during spawning season and where spawning has occurred.~~

*Statutory managers of freshwater sports fish, game birds and their habitat*

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~~[4] Fish and Game requests that conditions 20-23 be modified to remove the burden of resourcing from Fish and Game and provide protection for spawning, Fish and Game believes that this can be achieved through the following relief.~~

- ~~a. During spawning, dredging should only occur at depths greater than 1m to prevent the disturbance of spawning trout.~~
- ~~b. There will be no visually conspicuous sediment plume beyond 100m downstream of the discharge.~~

~~[5][2] If this relief were provided, Fish and Game expects the application would be more consistent with relevant planning documents and legislation.~~

~~[2] Fish and Game opposes this application on the basis that more can be done to mitigate its impact on spawning.~~

~~[3] Fish and Games preferred outcome includes the implementation of conditions that avoid the adverse effects on spawning and avoid redds. Therefore, Fish and Game seeks relief that would better mitigate the adverse effects during spawning season and where spawning has occurred.~~

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- ~~a. During spawning, dredging should only occur at depths greater than 1m to prevent the disturbance of spawning trout.~~
- ~~b. There will be no visually conspicuous sediment plume beyond 100m downstream of the discharge.~~

~~[5] It is Fish and Game's understanding that the applicant has since volunteered to remove conditions 20-23, and implement conditions that will restrict mining from occurring under depths of 1m. While Fish and Game acknowledges and supports the implementation of these conditions it continues to oppose this application on the basis that no condition has been implemented that seeks to limit a visually conspicuous sediment plume beyond 100m downstream of the discharge point.~~

~~[6] If this additional relief were provided Fish and Game believes that this would be more consistent with relevant planning documents and legislation.~~

### Introduction.

~~[2][7] Fish and Game is the statutory manager of sports fish and game bird resources within Otago. It holds functions and responsibilities set out in the Conservation Act 1987. The organisation's functions include managing, maintaining, and enhancing the sports fish and game resources of Otago in the recreational interests of anglers and hunters; representing the interests and aspirations of anglers and hunters in the statutory planning process; and advocating the interests of the Council, including its interests in habitats. This submission has been developed in line with these functions.~~

~~[3][8] Due to the popularity of angling in New Zealand, the demographic Fish and Game represents when carrying out its statutory functions is significant; however, this is not always obvious.~~

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## Otago Fish & Game Council



The 2013/2014 Active NZ Survey conducted by Sport and Recreation New Zealand reported that 19.5% of respondents had been fishing (including both marine and freshwater angling) in the past 12 months.<sup>1</sup> The survey found fishing had a higher rate of participation than rugby, tramping, football, cricket and basketball for men; and that fishing had a higher participation rate than netball, tennis, snow sports and tramping for women. Within Otago, license sales have exceeded 18,000 licenses across all categories for many years. Participation rates estimated from the National Angling Survey,<sup>2</sup> between 1994 and 2015 show that total freshwater fishing effort in the Otago Fish and Game region ranged from 180,860 to 215,430 angler-days over the fishing season.

[\[4\]\[9\]](#) As required by the Conservation Act 1987, Fish and Game has prepared a Sports Fish and Game Management Plan for Otago,<sup>3</sup> which has guided the development of this submission. This document describes the sports fish and game bird resources in the region and outlines issues, objectives, and policies for management over the period. The document may be useful for decision makers when considering this application.

#### *The Clutha River / Mata-au.*

[\[5\]\[10\]](#) The Clutha River / Mata-Au is New Zealand's largest river by volume and flows 338 kilometres from Lake Wanaka to the Pacific Ocean, 75 kilometres southwest of Dunedin,<sup>4</sup> its upper reaches flow from the outlet of Lake Wanaka to the top of Lake Dunstan.<sup>5</sup>

[\[6\]\[11\]](#) The Otago Fish and Game Management Plan identifies the Upper Clutha /Mata-au as a nationally significant trout fishery.<sup>6</sup> The waterbody contains both ecologically sensitive areas and significant spawning locations for trout, such as the Bendigo Wetland and Luggate Creek.<sup>7,8</sup>

[\[7\]\[12\]](#) It is within this context that the applicant seeks to operate a suction dredge.

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<sup>1</sup> Sport and Recreation New Zealand. 2015. Sport and Active Recreation in the Lives of New Zealand Adults: 2013/14 Active New Zealand Survey Results. Wellington: Sport New Zealand.

<sup>2</sup> Unwin, M. J. 2016. Angler Usage of New Zealand Lake and River Fisheries. Christchurch: National Institute of Water and Atmospheric Research.

<sup>3</sup> Otago Fish and Game Council. 2015. Sports Fish and Game Management Plan for Otago Fish and Game Region 2015 - 2025. Dunedin: Otago Fish and Game Council.

<sup>4</sup> Queenstown Lakes District Council. 2023. Lakes and Boating. <https://www.qldc.govt.nz/recreation/lakes-and-boating>.

<sup>5</sup> Land Air Water Aotearoa. Clutha River/Mata-au. <https://www.lawa.org.nz/explore-data/otago-region/river-quality/clutha-rivermata-au/>

<sup>6</sup> Otago Fish and Game Council. 2015. Sports Fish and Game Management Plan for Otago Fish and Game Region 2015 - 2025. Dunedin: Otago Fish and Game Council.

<sup>7</sup> Otago Regional Council. 2023. Bendigo Wetland. <https://www.orc.govt.nz/managing-our-environment/water/wetlands-and-estuaries/central-otago-district/bendigo-wetland>.

<sup>8</sup> Land Air Water Aotearoa. Luggate Creek. <https://www.lawa.org.nz/explore-data/otago-region/river-quality/clutha-rivermata-au/luggate-creek-sh6-bridge/>



### *Fish and Games Position.*

[\[8\]\[13\]](#) Fish and Game understands that the applicant has excluded what are identified on the application as 'ecologically sensitive' areas such as the Luggate Creek and Lindis River confluences / Bendigo Wetland.<sup>9</sup> In addition, the applicant has stated that there will be a 20m exclusion zone around any tributary confluence greater than 1m in width.<sup>10</sup> Such measures are commendable and appreciated by Fish and Game.

[\[9\]\[14\]](#) Fish and Game has identified numerous historic redd locations at various points along the Upper Clutha / Mata-au, these are shown in the map provided in Appendix A. It is important to note that each location marked on this map can represent multiple redds, and that more redd locations will be present throughout the waterbody and the proposed mining area with the location of these redds changing from year to year.

[\[10\]\[15\]](#) With this information, Fish and Game notes that dredging will still occur where spawning and rearing of juvenile trout is common, and as shown in Appendix A, Fish and game expects that there will be few locations where the applicant will find no spawning.

[\[11\]\[16\]](#) Spawning trout along with their redds, eggs and juveniles are sensitive to the type of disturbances that suction dredging will cause. This can include but is not limited to:

- a. *the physical disturbance of gravels, in which redds may be deposited or juveniles may be hiding in cover;*
- b. *the discharge of previously settled sediment, which may move downstream and smother redds, juveniles or spawning gravels; and*
- c. *changes to the structure of the river habitat, such the riffle, run, pool sequences.*

[\[12\]\[17\]](#) The applicant proposes several conditions such as conditions 20-23, that require Fish and Game to identify redds and spawning information to the applicant, from which an alternative mining strategy can be negotiated.

[\[13\]\[18\]](#) While conditions 20-23 have been made with good intentions, it is Fish and Games concern that these conditions delegate the responsibility of identifying redds onto us as an affected party. As previously stated, redds vary in location year to year and to identify these redds each season, would require a significant amount of time and resources and would need to be conducted on a yearly basis.

[\[14\]\[19\]](#) Such an exercise is simply not feasible for our organisation. Instead, Fish and Game recommends that additional conditions be adopted that would ensure that the applicant is doing their utmost to ensure that the impacts on trout habitat and the environment of the Upper Clutha / Mata-au are sufficiently mitigated.

[\[15\]\[20\]](#) Opportunities from which to prepare additional conditions will be addressed further below.

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<sup>9</sup> Application – p.50.

<sup>10</sup> Application – p.46.



#### *Depth of Dredging and Spawning Activity.*

- [16][21] Trout typically create redds at depths under 1m.<sup>11,12</sup> While the application states that the draft of the dredge will prevent mining from occurring at depths lower than 0.8m.<sup>13</sup> At present there are no conditions within this application that would limit mining to depths of 0.8m or greater. Such a condition which would aid in mitigating any potential adverse effects of the dredge on spawning.
- [17][22] It is suggested by Fish and Game, that there may be more room to create conditions that restrict the depths of dredging to water that is greater 1m in depth during the spawning period (1<sup>st</sup> of April – until the 31<sup>st</sup> of October), particularly as the application suggests that most of the mining will occur at depths of 2m-15m.<sup>14</sup>
- [18][23] This would provide an additional ‘safety net’ to protect trout habitat during spawning, as the locations and concentrations of trout redds can change year to year.

#### *Discharge of Sediment.*

- [19][24] Fish and Game questions whether the zone of reasonable mixing is appropriate in this case. The application promotes “...a condition of no visually conspicuous sediment plume beyond 200m downstream of the discharge point.”<sup>15</sup> It is assumed that this condition will be consistent with the Regional Water Plan which defines a ‘Conspicuous change in visual clarity’ as a “visual change in water clarity of more than 40%”.<sup>16</sup>
- [20][25] Fish and Game notes that this definition and the zone of reasonable mixing is an imperfect measure which should not be relied upon, particularly as the applicant has not been able to provide or guarantee a quantity or consistency of sediment that will be taken and discharged from the dredge.
- [21][26] While it is noted in application that the 200m zone is a precautionary measure to maintain good compliance rates,<sup>17</sup> a 200m zone of reasonable mixing remains a significant distance from which a plume of suspended sediment may travel down river, particularly in Upper Clutha / Mata-au.
- [22][27] Fish and Game believes there is further opportunity for the zone of reasonable mixing to be shortened to as the application states that the applicant is confident that the discharge plume will not be visible 100m downstream. In addition, the report from E3 scientific states that drone footage of the sediment plume produced by the dredge is generally “no wider than the width of the dredge, which is 6 m, and was scarcely visibly 50m downstream.” Fish and game

<sup>11</sup> Greater Wellington Regional Council. NRP - Schedule I - Trout Spawning Water.

<https://catalogue.data.govt.nz/dataset/nrp-schedule-i-trout-spawning-water>

<sup>12</sup> Louhi, P., Mäki-Petäys, A., Erkinaro, J. 2008. Spawning habitat of Atlantic salmon and brown trout: general criteria and intragravel factors. River research and applications. 24:3. p.330-339.

<sup>13</sup> Application – p.31.

<sup>14</sup> Application – p.5.

<sup>15</sup> Application – p.21.

<sup>16</sup> Otago regional Council. 2022. Regional Plan for Water.

<sup>17</sup> Application – p.21.



requests that there be no visually conspicuous sediment plume beyond 100m downstream of the discharge.

~~[23]~~[28] Fish and Game would like to reinforce there remains a great deal of uncertainty surrounding the impacts of suction dredging on aspects of freshwater ecology of the Upper Clutha / Mata-au, highlighted in the Cultural Impact Assessment produced by Aukaha.<sup>18</sup> It is therefore imperative that the above concerns are considered when a decision is made on this application to further mitigate any impacts on the Upper Clutha / Mata-au.

#### *Relief Sought.*

~~[24]~~ Fish and Game opposes this application, and recommends the following relief surrounding the mitigation of adverse effects on spawning. It is not appropriate for Fish and Game to provide information such as spawning and redd locations for this commercial operation, as the resource burden would be too great.

~~[25]~~ Fish and Game's preferred outcomes would be conditions that avoid the adverse effects on spawning and avoid redds. Therefore, Fish and Game seeks relief that would better mitigate the adverse effects during spawning season and where spawning has occurred.

~~[26]~~ Fish and Game requests that conditions 20-23 be modified to remove the burden of resourcing from Fish and Game and provide protection for spawning, Fish and Game believes that this can be achieved through the following relief.

~~a.~~ During spawning, dredging should only occur at depths greater than 1m to prevent the disturbance of spawning trout.

~~b.~~ There will be no visually conspicuous sediment plume beyond 100m downstream of the discharge.

~~[27]~~ If this relief were provided, Fish and Game expects the application would be more consistent with relevant planning documents and legislation.

~~[29]~~ Fish and Game opposes this application on the basis that more can be done to mitigate its impact on spawning.

~~[30]~~ Fish and Game's preferred outcome includes the implementation of conditions that avoid the adverse effects on spawning and avoid redds. Therefore, Fish and Game seeks relief that would better mitigate the adverse effects during spawning season and where spawning has occurred.

~~[31]~~ Fish and Game requests that conditions 20-23 be modified to remove the burden of resourcing from Fish and Game and provide protection for spawning, Fish and Game believes that this can be achieved through the following relief.

~~a.~~ During spawning, dredging should only occur at depths greater than 1m to prevent the disturbance of spawning trout.

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<sup>18</sup> Aukaha. 2023. Cultural Impact Assessment: Cold Gold Clutha Suction Dredging on the Mata-au. p.26.  
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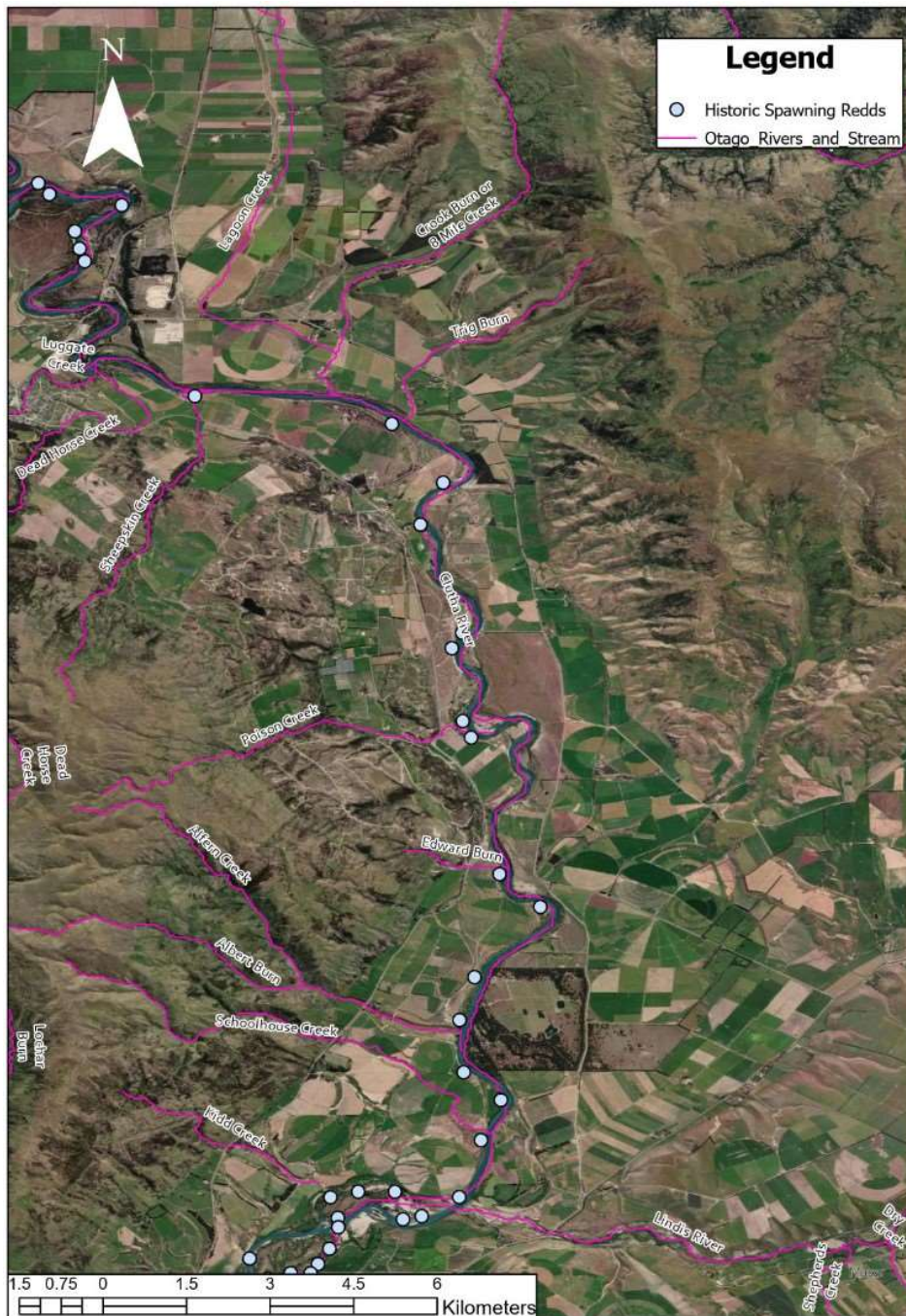


- [32] It is Fish and Game’s understanding that the applicant has since volunteered to remove conditions 20—23, and implement conditions that will restrict mining from occurring under depths of 1m. While Fish and Game acknowledges and supports the implementation of these conditions it continues to oppose this application on the basis that no condition has been implemented that seeks to limit a visually conspicuous sediment plume beyond 100m downstream of the discharge point.
- [33] If this additional relief were provided Fish and Game believes that this would be more consistent with relevant planning documents and legislation.



Appendix A – Map of Historic Spawning Data/Redds from Luggate Creek Confluence to the Lindis River Confluence.

Note: Each location marked on this map can represent multiple redds, and that unidentified redds will be present throughout the waterbody with their location changing year to year.



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